

Memorandum of Conference  
with  
Dr. Arthur Furst

I saw Dr. Furst on January 17, 1967, at his office at the Institute of Chemical Biology, University of San Francisco. For some time now, Ed Cooke and I have been carrying on discussions with Dr. Furst, looking toward the possibility of his being a witness in future Congressional hearings. Dr. Furst has indicated a willingness to consider testifying; and his experience and viewpoint are such that both Ed Cooke and I feel that it would be a benefit to have him testify.

Dr. Furst stated that a rerun he had completed of a previous experiment for CTR had shown a dose-response relationship between nickel added to cigarettes and the number of tumors induced in mice by inhalation of the smoke from those cigarettes. He expressed some surprise at the result. In the previous experiment, addition of nickel to cigarettes had not caused tumor induction when the amount of nickel added was up to 1000 times as great as that found normally in cigarettes.

We, together with two of his assistants (one of whom was a statistician), examined his data. From the data, I was able to determine that the dose-response relationship

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had not been demonstrated. Rather, it was a statistical artifact resulting from computations based upon the use of a different set of control mice for each level of dose of nickel. Additionally, the experiment had been conducted at different times for various levels of dose, apparently under conditions sufficiently different to affect the resulting comparison.

For present purposes, there is no point in going into detail. Dr. Furst and his assistants agreed that they could not properly interpret their results as establishing a dose-response relationship.

Dr. Furst then suggested that CTR should hold a conference to standardize use of controls and statistical methods so that this sort of thing would not occur. He also indicated that he was most appreciative of the suggestions made by Ed Cooke and myself on a previous visit concerning their smoking machine (presently in process and construction and preparation). He expressed interest in Dr. Homburger's machine, which is presently working under CTR auspices and which he believes differs from his in some particulars. He had spoken with Dr. Homburger about smoking machines quite some time ago, but they have not discussed the matter further nor has he talked to Dr. Hockett about the machine recently. It should be noted that his machine differs

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substantially from that of the Leuchtenbergers.

It should also be noted that the tumors induced in his animals are adenomas and not either adenocarcinomas or epidermoid carcinomas.

It is, of course, fortuitous that I saw Dr. Furst in time to prevent his fixing upon an erroneous and unfavorable conclusion. The incident emphasizes the need for establishment of a coordinated program of inhalation studies and for constant follow-up of the work done under the program. It has been well more than a year since the blueprint for such a program was to have been prepared by CTR and given to the Ad Hoc Committee for comment and recommendation. We still do not have any such program, nor even a draft of one. Moreover, CTR apparently does not have sufficient personnel to follow-up satisfactorily even on existing programs.

While we have not had the opportunity to discuss this incident at an Ad Hoc Committee meeting, I have mentioned it to several members of the Ad Hoc Committee. There was general concurrence that the situation should not rest as is and that a coordinated program and follow-up system should be developed, or other steps should be taken forthwith, designed to avoid repetition of this type of thing.

Edwin J. Jacob

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